WHAT IS CLAIMED IS:

[c1] A method of analyzing system performance with a system statistical associate (SSA), the method comprising:
collecting data on at least one system operating variable;
discerning at least one parameter affecting system performance from the data; and
generating a report on the at least one parameter affecting system performance.

[c2] The method of claim 1, further comprising:
monitoring a plurality of devices with a corresponding number of SSA modules comprised of:
collecting data on at least one device operating variable;
discerning at least one parameter affecting device performance from the data;
generating a data profile of parameters affecting device performance; and
communicating the data profile from each SSA module to the SSA; and
deriving at least one system model based on data profiles received from the plurality of SSA modules.

[c3] The method of claim 2, further comprising:
correlating a data profile from a first SSA module with a data profile of a second SSA module.

[c4] The method of claim 3, wherein the second SSA module is the nearest SSA module to the first SSA module.

[c5] The method of claim 4, wherein the nearest SSA module comprises the SSA module with one of:
the closest device operating variables;
the closest geographical proximity of devices;
the closest concurrent device operation;
the closest specie of device; and
the closest in time of device usage.

[c6] The method of claim 2, further comprising at least one of:
deriving a system lifetime model from the data profile;

finding correlation models among the plurality of devices;
data mining the data profile from each SSA module; and
performing pattern recognition techniques on the data profile from each SSA module.

[c7] The method of claim 1, wherein an operating variable comprises one of temperature, load, humidity, vibration, and power expended.

[c8] The method of claim 1, further comprising:
automatically changing the at least one discerned parameter to improve system performance.

[c9] A system statistical associate (SSA) module for use in a SSA monitoring system, the SSA module comprising:
a sensor configured to sense at least one operating variable on a monitored device;
a data processor configured to discern at least one parameter affecting the performance of the monitored device from the at least one sensed operating variable; and
a transmitter configured to transmit a data profile including the discerned parameter to a SSA system monitor.

[c10] The SSA module of claim 9, further comprising:
a receiver configured to receive a data profile from another SSA module,
wherein the data processor is further configured to correlate the received data profile with the sensed operating variable(s).

[c11] The SSA module of claim 10, wherein the received data profile is generated by another SSA module which comprises one of:
the closest in equipment operating variables;
the closest in geographical proximity of equipment;
the closest in concurrent equipment operation;
the closest in specie of equipment; and
the closest in time of equipment usage.

[c12] The SSA module of claim 9, wherein an operating variable comprises one of

temperature, load, humidity, vibration, and power expended.

[c13] A system statistical associate (SSA), comprising:
a plurality of SSA modules, each SSA module comprised of:
a sensor configured to sense at least one operating variable of a piece of equipment; and
a module computer coupled to the sensor,
wherein the module computer is programmed to:
discern a parameter affecting equipment performance from the operating variable;
create a data profile of parameters determined to affect equipment performance; and
communicate the data profile to the SSA; and
a SSA computer programmed to derive at least one system model based on data profiles received from the plurality of SSA modules.

[c14] The SSA of claim 13, wherein the SSA computer is further programmed to correlate a data profile from a first SSA module with a data profile of a second SSA module.

[c15] The SSA of claim 14, wherein the nearest SSA module comprises the SSA module with one of:
the closest in equipment operating variables;
the closest in geographical proximity of equipment;
the closest in concurrent operation of equipment;
the closest in specie of equipment; and
the closest in time of use of equipment.

[c16] The SSA of claim 13, wherein the SSA computer is further programmed to derive a system lifetime model from the data profiles received from the plurality of SSA modules.

[c17] The SSA of claim 13, wherein an operating variable comprises one of temperature, load, humidity, vibration, and power expended.

[c18] The SSA of claim 13, wherein the SSA computer is further programmed to

automatically change the discerned parameter to improve system performance.

[c19] A system statistical associate (SSA), comprising:
means for generating data profiles of a plurality of monitored devices;
means for discerning at least one parameter affecting system performance from the data profiles; and
at least one of:
means for reporting the discerned parameter; and
means for automatically changing the discerned parameter to improve system performance.

[c20] The SSA of claim 19, further comprising:
means for correlating the data profiles of at least two different monitored devices.

[c21] The SSA of claim 19, further comprising:
means for collecting data on at least one system operating variable.